

Weekly report

1 Done.

1.1 Graph privacy

- Writing: Introduction. (svn://10.76.0.186/Personal/wxm/graph_privacy)
- Discussion: We found a solution to deal with “hub fingerprint attack” by adding edges. Besides, we thought about the third attack – “subgraph attack”. There’s no published algorithm. May be an algorithm designed by Fangzhou and Dongming is helpful. We need attempts.
- Other: I invited Jia-Kai to join us, but he said he is too busy recently (finding job and leaving Davis). So he may reply me latter.

1.2 Geo privacy

We improved system and questionnaire. We ask Yuxin to do the first user study to confirm everything is ready.

Next week, we will start to recruit participants, but we are not sure whether we can find enough participants during the exam week.

1.3 Bitcoin visualization

I leant about bitcoin on the internet and collected related papers. The summarization is as following:

Analyze problems:

- Price changes (influencing factors: transactions, interest rates, etc.; impact)
- Transaction networks (analyzing user behavior, such as theft; extracting core networks; detecting structural changes)
- Comparison with other similar currencies (such as the user types)
- Supply and demand pressure

Visual objects:

- Transaction networks (sub-structure, ego-network)
- Memory pool
- Blockchain
- Peer to Peer (Global distribution)
- Correspondence between public key network and individual network

This weekend, I had a short talk with Pro. Xia.

- They need our spark to process data, so his students will directly communicate with me.
- The transaction networks of Bitcoin include a lot of redundant structures. For example, if I have two accounts with 50\$ respectively, and I should pay 75\$. The records may be one 50\$ from the first account, one 50\$ from the second account and a refund about 25\$. If the records like this can be simplified as I paid

75\$, the analyzing may be easier. But we are not sure if the complex records are meaningful to mine some patterns. So, we need evidence.

- Next, we will define tasks and process data.

2 Progress

Item	Deadline	Current progress	Remark
Geo-privacy	EuroVis	Ready for user study.	-
Graph privacy	January	First two sections done.	-
GAMES Webinar	11.23	Ready to present.	-
Bitcoin	-	Processing data.	-